

the other hand, a very marked increase in numbers. Although the bison in the Yellowstone are protected so far as possible from poachers, many of them fall victims to beasts of prey, and their rate of increase seems to be slow. Those in British territory are much harried by Indians, and are consequently decreasing daily in number.

It is accordingly to the domesticated and semi-domesticated herds that we have to look for the maintenance of the species. And with the example of the Lithuanian herd of European bison before us, coupled with the larger size of several of the American herds, and the facilities that exist for the introduction of fresh blood to counteract the ill-effects of inbreeding, there would seem, at first sight, to be a great probability that the American bison may survive for many generations.

It has, however, been brought to the notice of the writer of the article under consideration that, in the case of animals living under conditions other than those which properly belong to them, there is a great tendency for the proportion of males among the offspring to increase in an alarming degree at the expense of the females. And to such an extent does this abnormality prevail in some of the herds, that in Bronx Park, New York, every calf is put down as a bull as a matter of course. If this were universal, the fate of the species would evidently be soon sealed; but fortunately it is not so, and as the Allard herd wanders almost at will under what are practically the natural conditions of the species, there still appears (in spite of certain disabilities) hope that the final extinction of *Bos bison* is a remote contingency. R. L.

#### UNIVERSITY AND EDUCATIONAL INTELLIGENCE.

OXFORD.—Mr. A. J. Evans, Keeper of the Ashmolean Museum, will give three public lectures on "The Palace of Knossos: its Art Treasures and Clay Archives," explanatory of his recent work in Crete; the dates announced are November 22, November 29, December 6.

The trustees of the Craven Fellowships have made a grant of 200*l.* to assist Messrs. Grenfell and Hunt in their Egyptian researches.

On Thursday, November 15, the new degree of Doctor of Letters was conferred upon Mr. B. P. Grenfell, Mr. A. S. Hunt, and Mr. J. Rhys, Principal of Jesus College, and the degree of Doctor of Science upon Prof. A. E. H. Love and Mr. H. W. Lloyd Tanner.

Prof. Miers has been appointed a delegate for the inspection and examination of schools.

The report of the Delegacy for the Training of Teachers states that there were twenty-six students on the books of the College at the end of the academical year. Mr. Roscoe, having been appointed Lecturer on Education in the University of Birmingham, has been succeeded by Mr. A. W. Priestley as Master of Method at the Day Training College.

CAMBRIDGE.—The syndicate appointed to superintend the erection of the Hopkinson wing of the engineering laboratory report that the work has been successfully carried out at a cost of 5516*l.* Of this, Mrs. Hopkinson and her family contributed 5000*l.* Additional donations, amounting to 1700*l.*, have been received for the furnishing and equipment of the building, which have thus been carried out without expense to the University. The classes, however, are still growing rapidly, and the accommodation is already insufficient. A further extension will soon have to be undertaken, and new workshops are much needed.

The Medical School Syndicate propose that the existing Museum of Surgery and Pathology, which has become so infected with dry-rot that it endangers the contiguous structures, shall be demolished, and that the new Humphry Museum shall be erected on its site at a cost of some 8000*l.* Over 1000*l.* has been specially contributed for this memorial to the late Sir George Humphry, and it is hoped that if the work is actually begun other donations to the building fund may be received.

THE *British Medical Journal* states that under the will of the late Dr. D. J. Leech, professor of materia medica and therapeutics in the Owens College, Manchester, that college will eventually benefit to the extent of 10,000*l.*, which Dr. Leech bequeathed for the purpose of endowing a chair of materia medica and therapeutics. The bequest will take effect upon the demise of Mrs. Leech.

LORD ROSEBURY dealt with many Imperial questions in his Rectorial address at Glasgow University on Friday last, but none were of more importance than those concerned with the factors of industrial progress, and their educational relationships. The following extracts from the *Times* report of his speech are of particular interest to all who are engaged in the work of science or scientific education:—The United States Consul at Chemnitz has remarked that, "If an industry in Germany languishes, immediately a commission inquires into the causes and recommends remedial measures, among which usually is the advice to establish technical or industrial schools, devoted to the branch of business under consideration." In a word, they go to the root, to the principle, to the source. This is thoroughness, this is the scientific method applied to manufacture, and we see its success. The Americans, I gather, have hitherto applied themselves rather less to the principles than the applications of science. I do not pretend to say which are right. The Germans are alarmed at the development of American commerce, and we are alarmed at both. At any rate, both in Germany and the United States you see an expenditure and a systematic devotion to commercial, and technical, and scientific training. I know that much is done, too, in Great Britain. But I doubt if even that is carried out in the same methodical way; nor is there anything like the same lavish, though well-considered, expenditure. It always seems to me as if in Germany nothing, and in Britain everything, is left to chance.

For the practical purposes of the present day, said Lord Rosebery at Glasgow, a University which starts in the twentieth century has a great superiority over a University founded in the fifteenth, more especially when it is launched with keen intelligence of direction and ample funds, as is the new University of Birmingham. These practical Universities are the Universities of the future; for the average man, who has to work for his livelihood, cannot superadd the learning of the dead to the educational requirements of his life and his profession. There will always be Universities, or, at any rate, colleges, for the scholar, the teacher, and the divine; but year by year the ancient Universities will have to adapt themselves more and more to modern exigencies. There was a time, long years ago, when the spheres of action and of learning were separate and distinct, when laymen dealt hard blows and left letters to the priesthood. That was to some extent the case when our oldest Universities were founded. But the separation daily narrows, if it has not already disappeared. It has been said that the true University of our days is a collection of books. What if a future philosopher shall say that the best University is a workshop? And yet the latter definition bids fair to be the sounder of the two. The training of our schools and colleges must daily become more and more the training for action, for practical purpose. Are there not thousands of lads to-day plodding away, or supposed to be plodding away, at the ancient classics who will never make anything of those classics, and who, at the first possible moment, will cast them into space, never to reopen them? Think of the wasted time that that implies; not all wasted, perhaps, for something may have been gained in power of application, but entirely wasted so far as available knowledge is concerned. And if you consider, as you will have to consider in the stress of competition, that the time and energy of her citizens is part of the capital of the commonwealth, all those wasted years represent a dead loss to the Empire. If, then, these recent events and the present conditions of the world induce thinkers and leaders in this country to test our strength and methods for the great struggle before us, they must reckon the training of man. On that, under Providence, depends the future, and the immediate future, of the race; and what is Empire but the predominance of race?

#### SOCIETIES AND ACADEMIES.

##### LONDON.

Linnean Society, November 1.—Prof. S. H. Vines, F.R.S., President, in the chair.—Mr. J. E. Harting exhibited and made remarks upon the following birds which had been recently forwarded to him for examination:—(1) A hybrid between black-cock and red grouse, shot at Brechin, N.B., September 14. (2) A glossy ibis, killed at Saltash, Devon, October 4. (3) A little owl, obtained at Dunmow, Essex, October 22. Mr. F. D. Godman concurred in identifying the game-bird as a hybrid

between the species named, and considered such hybrids of rare occurrence, while examples of a cross between blackcock and pheasant were not nearly so uncommon. Mr. Howard Saunders regarded the little owl (*Carine noctua*) as having little if any claim to be considered a British bird; its occasional appearance in England being due to the fact that a good many had been turned out from time to time in different counties.—Mr. George Massee exhibited a series of coloured drawings and an extensive collection of fungi.—Dr. Charles Chilton, M.A., F.L.S., read a paper on the terrestrial isopods of New Zealand.—M. J. F. S. Moore read a paper on the character and origin of the "parklands" in Central Africa. These parklands in the Tanganyika district have quite the appearance of having been formed by the hand of man, but are really natural growths, due to the fact that light surface-soil has been laid down over what appear to have been lake-deposits. Any given line of country will show large plantations, with quite a home-like look, separated by grasslands; and, as Tanganyika is approached, they dwindle in size till they consist of a few shrubs, overshadowed by giant euphorbias, cactus-like in appearance. Then come stretches of grass, dotted with euphorbias, and, last of all, the salt steppes by the lake, which is now held to have had at one time an outlet to the sea. Mr. Moore's explanation is that at first only the euphorbias would grow on the salt steppes; but as these sprang up they afforded a shade and shelter to self-sown shrubs, each of which, as it established a footing, contributed to the natural planting of the area by the distribution of its seeds, till this process reached its highest development in the large plantations where the shrubs overtopped the euphorbias to which they owed their growth.

**Geological Society, November 7.**—J. J. H. Teall, F.R.S., President, in the chair.—Additional notes on the drifts of the Baltic coast of Germany, by Prof. T. G. Bonney, F.R.S., and the Rev. E. Hill. The authors, prior to revisiting Rügen, examined sections of the drift to the west of Warnemünde, with a view of comparing it with that of the Cromer coast. The authors give reasons to show that neither solution of the chalk, nor ice-thrust, nor folding, nor even faulting, can satisfactorily explain the peculiar relations of the drift and chalk in Rügen; and they can find no better explanation than that offered in their previous paper.—On certain altered rocks from near Bastogne and their relations to others in the district, by Dr. Catherine A. Raisin. Prof. Renard, from the petrographical study of specimens, and Prof. Gosselet, after description of the district and its stratigraphy, have attributed the changes in these rocks to mechanical disturbances. Dumont had previously described many examples, and inclined to the view of contact-alteration, which was favoured by Von Lasaulx's discovery of a granite in the Hohe Venn, and M. Dupont's identification of chialotite from Libramont. The present paper treats especially of the garnetiferous and hornblendic rocks, giving the full petrographical and field-details of a few examples. It points out that the effects of pressure are evident over the whole district, while mineral modifications resembling the results of slight contact-action are found in certain areas. In a few cases these modifications are more marked, and sometimes increase as we approach veins composed of quartz, felspar and mica, such as might be connected with a concealed granite. The peculiar garnetiferous and hornblendic rocks, although occurring within the zone of alteration, are extremely limited, often forming patches or bands a few feet across. They differ, as described in the paper, from ordinary contact-altered rocks. The evidence, in the authoress's opinion, is in favour of Prof. Bonney's suggestion that they are due to some form of hot-spring action.

**Entomological Society, November 7.**—Mr. G. H. Verrall, President, in the chair.—Mr. G. S. Saunders exhibited specimens, from Devonshire, of *Pieris rapae* and *Plusia gamma*, caught by the proboscis in flowers of *Araujia albens*, Don., a climbing plant of the natural order *Asclepiadaceae*; and explained the nature of the mechanism by which the insects were entrapped by the flowers. He also showed specimens of the "bedeguar" gall formed apparently on the "hips," or fruit, of *Rosa canina*. Mr. Gahan remarked that the capture of insects by the plant named had recently been investigated in France by MM. Marchand and Bonjour, whose account appeared in the *Bulletin de la Soc. des Sciences Nat. de l'Ouest de la France*, for 1899. These authors concluded that insects were captured only by immature flowers, the anther-wings, in the cleft between which the proboscis of the insect is caught, being at that time stiff and resistant; but when the flowers are ripe the anther-

wings become less rigid and do not offer sufficient resistance to the withdrawal of the proboscis, which carries with it the pollinia ready to be transferred to the stigma of the next flower visited by the insect.—Mr. W. J. Kaye exhibited *Hydrocampa stagnalis*, var., with examples of the typical form for comparison; the variety differed in having the basal line nearly obsolete, the sub-median double line much strengthened internally and reduced externally, and the cross band connecting the sub-median and post-median bands almost entirely obliterated.—Mr. F. Merrifield exhibited a variety of *Argynnis dia* taken with a few examples of the ordinary form at Ilanz in the Vorder Rhein valley early in September last, when what was, he believed, a third brood of this species, was abundant; the variety was much blackened on the basal half of all the wings.—Canon Fowler exhibited a specimen of *Orochares angustatus*, Erichs., a Staphylinid beetle new to the British list, taken at Leverstock Green, Herts, by Mr. Albert Piffard.—The Rev. F. D. Morice mentioned, as a fact of some interest, that in a nest of *Formica sanguinea* at Weybridge, in which he found males and workers of that species, he found also males and females as well as workers of the slave-ant *Formica fusca*, an experience somewhat different to that of Huber and Darwin, who stated that workers only of the slave species were found in the nests of *sanguinea*.—The Secretary read "Some notes on variations of *Zeritis thysbe*, Linn.," communicated by Mr. H. L. L. Feltham, and exhibited one female and two male specimens of one of the rare forms referred to in the paper.

**Mathematical Society, Nov. 8.**—Lord Kelvin, G.C.V.O., President, in the chair.—Reports from the Treasurer and Secretaries were read and received. The ballot was taken and the gentlemen whose names appeared in *NATURE* for October 18 were declared to have been duly elected to serve on the Council for the session 1900-1901. Lord Kelvin, on leaving the chair, thanked the Society for having elected him to the office, and regretted that the distance (400 miles) of his home from town had caused him to be so rarely able to take the chair. He then cordially welcomed his successor, Dr. Hobson, and expressed his pleasure in having him for his successor. The new President thanked the members for electing him, and then called upon Lord Kelvin to deliver his address "On the transmission of force through a solid." The address was a very interesting one, and on the motion of Dr. Glaisher, seconded by Dr. Larmor and backed by the acclamation of the members present, Lord Kelvin consented to put his remarks into a shape fitted for publication in the Society's *Proceedings*.—Dr. Glaisher then communicated two papers: (i) A general congruence theorem relating to the Bernoullian function; (ii) On the residues of Bernoullian functions for a prime modulus, including as special cases the residues of the Eulerian numbers and the I-numbers.—Mr. Tucker next communicated some notes on Isoscelians, and gave a few properties of two in-triangles similar to the pedal triangle. These triangles have their sides perpendicular to the antiparallels of the primitive triangle.—The President communicated the remaining papers by simply reading their titles. In a simple group of an odd composite order every system of conjugate operators or subgroups includes more than fifty, Dr. G. A. Miller.—Prime functions on a Riemann surface, Prof. A. C. Dixon.—On Green's function for a circular disc, H. S. Carslaw.—On the real points of inflection of a curve, A. B. Basset.—On quantitative substitutional analysis, A. Young.—On a class of plane curves, J. H. Grace.—(i) On group characteristics, and (ii) On some properties of groups of odd order, Prof. W. Burnside.—(i) Conformal space transformations, and (ii) Dynamical and other applications of algebra of bilinear forms, T. J. Bromwich.

**Mineralogical Society, November 13.**—Prof. A. H. Church, F.R.S., President, in the chair.—Mr. G. F. Herbert Smith described an improved form of his three-circle goniometer, in which the use of an autocollimating telescope obviates the disadvantage of the original instrument that measurements could only be made through 93°.—Mr. Harold Hilton gave a simple proof of the rationality of the anharmonic ratio of four faces of a zone.—Mr. R. H. Solly, in continuation of the investigation of sulpharsenites of lead from the Binnenthal, described the crystallographic characters of rathite.

MANCHESTER.

**Literary and Philosophical Society, October 30.**—Prof. Horace Lamb, F.R.S., President, in the chair.—A paper on the solubility of certain lead glasses or frits used in the preparation

of pottery glazes, by William Jackson and Edmond M. Rich, was read. The paper described experiments carried out to determine what factors, apart from chemical composition, affect the amount of lead oxide yielded to dilute hydrochloric acid by lead frits as used by potters. It was found that the solubility is increased in a very marked manner by increase of fineness, so that it appears that if details are given of the solubility of frits they should be accompanied by particulars of its degree of fineness. The solubility of the same frit reduced to different degrees of fineness varied from 1 to 15 per cent. of the material used. It was found also that after the action of the acid has proceeded for a short time it appears that the whole of the soluble lead has been extracted. This, however, was due, not to the absolute insolubility of the remainder, but to the formation of an insoluble layer on the surfaces exposed to the action of acid which protects the particles from further action. By removing this layer by chemical or physical means it was found possible to extract more lead oxide from the frit, and by continually removing this insoluble layer it was possible to extract continually more lead oxide, until practically the whole of the lead oxide passed into solution.—A paper on the phloem of *Lepidophlois* and *Lepidodendron* was read by Prof. F. E. Weiss. The author had examined sections of these two nearly allied fossil plants in which the tissues have been exceptionally well preserved. The examination of these specimens led him to the conclusion that the phloem region is not occupied by large secretory sacs, and that the tissue is not partially disorganised during the life of the plant, as has been suggested, but that it consists of cells not fundamentally different from those composing the phloem of living lycopods. In those stems, however, in which secondary thickening is found to have taken place, an active division of some of the phloem cells can be observed. The author discussed the possible reasons for the usual destruction of the phloem elements, and considered that it must take place previous to mineralisation, but after the death of the plant. He attributed the more ready destruction of the phloem cells to the peculiar nature of the cell walls, which he thought were probably composed—as in the case of the nearly allied lycopods—of amyloid, a semihydrate of cellulose. This substance is more easily acted upon by water than cellulose, and consequently the phloem would be more liable to rapid decay than the rest of the tissues.

November 13.—Prof. Horace Lamb, F.R.S., President, in the chair.—Prof. Reynolds mentioned a curious phenomenon observed at sunset during the summer, in the form of a narrow beam of light proceeding vertically from the sun and persisting for about half an hour after sunset. A similar appearance was seen by Mr. Thorp when crossing the Mediterranean in the early summer.—Dr. Lees called attention to a useful expression for calculating the circumference of an ellipse to a close degree of approximation, more simple than those ordinarily given in engineers' text-books.—Mr. Thorp described a method by which he had succeeded in silvering his diffraction films, and he referred to a device by which he expects to obtain similar films from concave surfaces.—Prof. Dixon discussed the reversal of lines of the spectrum of an explosion wave observed by Profs. Dewar and Liveing, and gave an alternative explanation to that offered by them. He also discussed Mendeleeff's theory as to the nature of the action which takes place when hydrogen and oxygen or other pairs of gases combine, and suggested an alternative view of the nature of the reaction.

#### EDINBURGH.

**Royal Society, November 5.**—Sir Arthur Mitchell, Vice-President, in the Chair.—As usual at the first meeting of the session, the chairman gave a short review of the work of the preceding session. In particular, attention was drawn to the bequest to the Society made by the late Prof. Piazza Smythe; to the representation which the Society had made to the Geological Survey Committee as to the advisability of completing the survey of Scotland on the six-inch scale; and to the Scottish Antarctic Expedition now being organised by Mr. W. S. Bruce.—A paper was read by Drs. O. Noel Paton, J. C. Dunlop and Elsie Inglis on dietary studies of the poorer classes in Edinburgh. The diets of fifteen families, including ninety-five individuals belonging to the labouring classes, were studied by the method employed by Atwater in America. It was found that the average diet of the thrifty poor contained 108 grms. of proteid and 3275 large calories of energy per man per diem; but among the thriftless and ignorant very defective diets were observed. Such a

deficient diet cost, for an average family of father, mother and four or five children, about 15s. 6d. per week, which leaves out of a labourer's wage of 20s. to 22s. a sum too small for the other necessities of life and nothing for recreation.—In a note on the relations amongst the thermo- and electro-magnetic effects, Dr. W. Peddie showed how the Hall, the Nernst, the Ettingshausen and the Leduc effects may be represented in mutual relation, so that when, say, the Leduc effect is known, the others may be predicted. For this purpose consideration is taken of the direction of the resultant heat flow induced in consequence of the changes of temperature gradient evidenced in the Thomson effect. The Leduc effect is known only in the case of bismuth, yet, in the case of other metals, the possible signs of the remaining effects can be deduced; and the actual signs are found to be included in these in all cases except those of cobalt and zinc.

**Mathematical Society, Nov. 9.**—Mr. R. F. Muirhead in the chair.—The following papers were read: Euclidian proof of Pascal's theorem, by Mr. R. F. Davis.—Note on the expression for the area of a triangle, by Mr. C. Tweedie.—Proof of a theorem in co-ordinate geometry, by Mr. J. Jack (communicated by Mr. A. Milne).—The following were elected office-bearers for the current session: President, J. W. Butters; Vice-President, Geo. Duthie; Hon. Secretary, D. C. McIntosh; Hon. Treasurer, James Archibald.

#### PARIS.

**Academy of Sciences, November 12.**—M. Maurice Lévy in the chair.—On the next appearance of the Leonids, and their aerostatic observation, by M. J. Janssen. In order to prevent the interference of clouds with the observations of the Leonids, arrangements had been made for a balloon ascent on each of the three nights, November 13–14, 14–15, and 15–16, during which Leonids may be expected.—On the conditions affecting chemical activity under the action of silent electrical discharges, by M. Berthelot. The effects of silent electrical discharges ("effluve") and of atmospheric electricity are compared, the production of oxides of nitrogen, ozone and nitric acid being possible in this way without actual lightning. Some of the effects produced in Deville's hot and cold tube experiments, and ascribed by him to dissociation, are also ascribed by the author to similar electrical effects.—On the order of formation of the elements of the central cylinder in the root and stem, by M. Gaston Bonnier. The central cylinder presents the same general structure in both root and stem, the constitution and the order of development of the tissues being the same in both cases, except as regards the position of the ligneous poles. The paper is illustrated by six diagrams showing sections of *Thalictrum silvaticum*, *Chenopodium polyspermum*, *Ricinus communis*, *Pulmonaria officinalis* and *Ranunculus acris*.—The Perpetual Secretary announced to the Academy the death of M. l'Abbé Armand David, Correspondent for the Section of Geography and Navigation.—On surfaces which possess a non-linear series of rational curves, by M. S. Bantor.—On the series analogous to Lagrange's series, by M. A. Bougaiev.—Superficial lines appearing in the sawing of metals, by M. Ch. Frémont. Six photographs are given of sections of different shapes cut by sawing. A series of lines, differing from the saw markings, are produced, which vary with the shape of the piece cut, the systems of lines being parallel to the edges cut by the saw. They differ from Lüder's lines.—On the experiments of Prof. Rowland relating to the magnetic effect of "electrical convection," by M. V. Crémieu. In previous communications the author has described experiments which led him to the conclusion that the so-called "electrical convection" produced no magnetic effect. Further experiments are now described, corresponding exactly to those of Rowland and of Himstedt, in which a charged disc rotates round a magnetised needle. In the first experiment no deviation of the needle was observed, although the effect should have been from 12 to 175 mm. In other experiments a deviation was obtained, but it is shown that these deviations are not due to the magnetic effect of the electrical convection, since they can be suppressed by the intervention of a metallic plate. The whole work tends to show that, contrary to the experiments of Rowland, electrical convection produces no magnetic effect.—On the splitting-up by alkalis of acetylenic ketones, by MM. Ch. Moureu and R. Delange. Ketones of the type  $R-C\equiv C-CO.R'$  are split up by heating with alkalis. An acid and a ketone would, in general, appear to be produced simultaneously, thus benzoylphenylacetylene,  $C_6H_5.CC.CO.C_6H_5$ , gives benzoic acid and acetophenone.

Acetylphenylacetylene behaves in an exceptional manner, giving phenylacetylene and acetic acid.—On the constitution of camphoric acid and the migrations which occur within its molecules, by M. G. Blanc.—On the evolution of terpene derivatives in the geranium, by M. Eug. Charabot. Acidity diminishes as the plant grows, and the amount of ester increases, possibly at the expense of the geraniol. The ketonic compounds occur chiefly at the time when the plant possesses the maximum respiratory activity.—On the presence of invertine or sucrose in grapes, by M. V. Martinand.—The old course of the Aar, near Meiringen (Switzerland), by M. Maurice Luglon.—On the regeneration of confined air by means of sodium peroxide, by MM. Desgrez and Balthazard. A reclamation of priority against H. G. F. Jaubert.

#### NEW SOUTH WALES.

**Linnean Society**, September 26.—The Hon. James Norton, President, in the chair.—Phosphorescent fungi in Australia, by D. McAlpine. Phosphorescent fungi are generally natives of warm climates, and the largest number of Agarics possessing this property, for any locality, has been met with in Australia. Out of twenty-one species known altogether, fifteen occur in Australia, while five of them are confined to the Island Continent. *Pleurotus candescens*, F.v.M., is very common in the neighbourhood of Melbourne during April and May, and was specially studied in connection with the phenomenon of phosphorescence or luminosity. Luminosity was practically confined to the gills, which were found to be decidedly acid. The light probably proceeded from excreted luminous metabolic products known as phosphorescents.—On a new genus and two new species of Australian Coccidae, by E. Ernest Green. A species of *Rhizococcus* from *Acacia decurrens* at Mittagong, N.S.W., and one of *Antecrocooccus* (gen. nov.) from *Pittosporum eugenoides*, at Bathurst, N.S.W., are described.—Observations on the tertiary flora of Australia, with special reference to Eittinghausen's theory of the tertiary cosmopolitan flora, Part ii., by Henry Deane. The aspect of the subject particularly considered in this paper is the venation of leaves and its untrustworthiness in the determination of botanical affinities. Plants cannot be classified by their leaves, as their form and venation do not in any way correspond to the acknowledged botanical divisions. It is found that the same types occur in widely different orders and different types in the same genus. As to variability of types in the same genus, examples from the genera *Quercus* and *Eucalyptus* were given; and illustrations of closely similar and even undistinguishable leaves of distinct genera and orders were mentioned.—Notes on the botany of the interior of New South Wales, Part i., by R. H. Cabbage. This first instalment is descriptive of the characteristics, distribution and relation to geological formation, of the more conspicuous members of the flora, such as the Eucalypts, Acacias, &c., noticeable between Bourke and Cobarr, a distance of about 100 miles.—A fish disease from George's River, by R. Greig Smith. Under the proposed name of *Vibrio bresliae* an organism is described which was isolated from the carcass of a fish found dying under suspicious circumstances in George's River. The organism is pathogenic to fish, producing death in about two days. It is non-phosphorescent, but is otherwise closely allied to this group of vibrios.—Australian land planarians: descriptions of new species, and notes on collecting and preserving, No. ii., by Thos. Steel. Three new species of *Geoplana* from Western Australia are described, and the occurrence of a new variety of *G. quinquelineata*, F. and H., is noted. These are of interest as being the first land planarians recorded from this part of Australia. The same new variety of *G. quinquelineata* is also recorded from South Australia, and a description of it is given. Another *Geoplana* found in the vicinity of Sydney is described as new.

#### DIARY OF SOCIETIES.

##### THURSDAY, NOVEMBER 22.

ROYAL SOCIETY, at 4.30.—Further Note on the Spectrum of Silicon: Sir Norman Lockyer, K.C.B., F.R.S.—On Solar Changes of Temperature and Variations in Rainfall in the Region Surrounding the Indian Ocean: Sir Norman Lockyer, K.C.B., F.R.S., and Dr. W. J. S. Lockyer.—On the Restoration of Co-ordinated Movements after Nerve Crossing with Interchange of Function of the Cerebral Cortical Centres: Dr. R. Kennedy. INSTITUTION OF ELECTRICAL ENGINEERS, at 8.—Telegraphs and Telephones at the Paris Exhibition, 1900: John Gavey.

NO. 1621, VOL. 63]

ANTHROPOLOGICAL INSTITUTE, at 8.30.—On the Berbers of Algeria, and their Connections with Prehistoric Egypt: D. Randall-Maciver and A. Wilkin.

##### FRIDAY, NOVEMBER 23.

PHYSICAL SOCIETY, at 5.—An Automatic Wheatstone's Bridge: W. C. D. Whetham.—The Anomalous Dispersion of Carbon: Prof. R. W. Wood.—The Liquefaction of Hydrogen: Dr. M. W. Travers.—On the Refraction of Sound by Wind: Dr. E. H. Barton.

##### SATURDAY, NOVEMBER 24.

ESSEX FIELD CLUB (Museum of Natural History, Stratford), at 7.—On the Variations in the Marine Animals on Coast of Essex during the last Ten or Twelve Years: Dr. H. C. Sorby, F.R.S.—Notes on the Eocene Fauna and Flora of Walton-on-Naze: J. P. Johnson.—British Wild Flowers Photographed from Nature: J. C. Shenstone.

##### MONDAY, NOVEMBER 26.

ROYAL GEOGRAPHICAL SOCIETY, at 8.30.—Expedition to Lake Tanganyika and the Country to the North: J. E. S. Moore.

SOCIETY OF ARTS, at 8.—Electric Oscillations and Electric Waves: Prof. J. A. Fleming, F.R.S.

INSTITUTE OF ACTUARIES.—Inaugural Address by the President, C. D. Higham.

##### TUESDAY, NOVEMBER 27.

ANTHROPOLOGICAL INSTITUTE, at 8.30.—On Stone Implements from Tasmania: J. Paxton Moir.

INSTITUTION OF CIVIL ENGINEERS, at 8.—Paper to be further discussed: The Metropolitan Terminus of the Great Central Railway: G. A. Hobson and E. Wragge.—Paper to be read and discussed, time permitting: Machinery for the Manufacture of Smokeless Powder: Oscar Guttman.

ROYAL PHOTOGRAPHIC SOCIETY, at 8.—Analytical Portraiture: Francis Galton, F.R.S.

##### WEDNESDAY, NOVEMBER 28.

SOCIETY OF ARTS, at 8.—Malaria and Mosquitoes: Major Ronald Ross.

##### THURSDAY, NOVEMBER 29.

GOLDSMITHS' INSTITUTE CHEMICAL SOCIETY, at 8.30.—The Profession of an Industrial Chemist: Dr. J. Lewkowitsch.

#### CONTENTS.

#### PAGE

The Correspondence of Berzelius and Schönbein. By Prof. R. Meldola, F.R.S. . . . .	77
Some Observations on Animal Hypnotism. By C. S. S. . . . .	78
Our Book Shelf:—	
“Memoranda of the Origin, Plan and Results of the Experiments conducted at Rothamsted; Fifty- seventh Year of the Experiments, 1900.”—R. W. Dale: “The Scenery and Geology of the Peak of Derbyshire” . . . . .	79
Celli: “Malaria” . . . . .	80
Westell: “A Year with Nature.”—R. L. . . . .	80
Curran: “The Geology of Sydney and the Blue Mountains: a Popular Introduction to the Study of Geology” . . . . .	81
Cole: “Light Railways at Home and Abroad” . . . . .	81
Schaffers: “Les Plaques Sensibles au Champ Élec- trostatique.”—H. A. W. . . . .	82
Durfee: “The Elements of Plane Trigonometry” . . . . .	82
Letters to the Editor:—	
Autotomic Curves.—A. B. Basset, F.R.S. . . . .	82
A Remarkable Dolphin.—R. Lydekker, F.R.S. . . . .	82
The Optics of Acuteness of Sight.—Dr. A. S. Percival . . . . .	82
Electric Traction Troubles . . . . .	83
Agricultural Demonstration and Experiment. By Prof. Wm. Somerville, F.R.S. . . . .	84
Horticultrual Practice . . . . .	86
Some Remarkable Earthquake Effects. (Illus- trated.) . . . . .	87
Investigations of the Habits and Folk Lore of Australian Aborigines . . . . .	88
Notes . . . . .	88
Our Astronomical Column:—	
The Leonid Meteors . . . . .	92
Elements of Comet 1900 (Borrelly-Brooks) . . . . .	92
New Variable Star in Lyra . . . . .	92
Visual Observation of Capella (α-Aurigæ) . . . . .	92
Huxley's Life and Work. By the Rt. Hon. Lord Avebury, F.R.S. . . . .	92
The Numbers of the American Bison. By R. L. . . . .	96
University and Educational Intelligence . . . . .	97
Societies and Academies . . . . .	97
Diary of Societies . . . . .	100